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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,622	12/03/2004	Ian Ralph Collins	608-446	5415

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EXAMINER	
FIGUEROA, JOHN J	
ART UNIT	**PAPER NUMBER**
1712	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/516,622	COLLINS ET AL.	
	Examiner	Art Unit	
	John J. Figueroa	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *32-51* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *32-51* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/03/2006*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 32, 34, 37-43 and 45-51 are rejected under 35 U.S.C. 102(b) as being anticipated by United States Patent Number (USPN) 6,380,136 B1 to Cantu et al., hereinafter 'Cantu'.

Cantu discloses a process for placing oil field chemicals in an oil well bore/subterranean formation, wherein the chemical(s) are enclosed within microcapsules of a condensation product of hydroxyacetic acid (or co-condensation with another compound), wherein upon introduction of said microcapsules into an oil well bore/formation, they dissolve over a period of time and subsequently release the chemical into the well bore/formation. (Abstract; col. 1, line 37 to col. 2, line 32; col. 3, line 54 to col. 4, line 2; claims 1 and 3). These condensation products are friable solids with a melting point of greater 65°C and are insoluble in both aqueous/hydrocarbon

media, but will degrade at specific rates in the presence of moisture and temperatures above about 50°C. Thus, they can be injected into formation at a temperature greater than 50°C. (Col. 1, lines 56-66)

Cantu discloses that the microcapsule composition can be used to deliver a wide variety of oil field chemicals, such as corrosion inhibitors to prevent the corrosion of metal in oil well equipment (e.g., polyamines, diamine salts, polar organic compounds and cationic surfactants), dispersants which act as solvents for paraffin (e.g. nonionic surfactants); pourpoint modifiers to inhibit the deposition of paraffinic material both in the channels leading to the wellbore and in well tubing/equipment; emulsion breaking chemicals to lessen the tendency of water and oil to emulsify (such as, phenol-formaldehyde sulfonate, alkylphenol ethoxylates and polyglycols); wetting agents or surfactants to render the formation more oil wettable than water; and acids or acid salts such as formic acid and ammonium sulfate for the dissolution of calcium carbonate-containing formations. (Col. 2, lines 33-63) Particularly, the microcapsule can be used to deliver a scale inhibitor for preventing the deposition of scale in the wellbore and formation, such as phosphonates, polyacrylates and polysulfonates; bactericides; cement additives, such as retarders and accelerators; fracturing fluid cross linkers; and asphaltene treatment chemicals (such as alkylphenol ethoxylates and aliphatic polyethers). (Col. 2, line 63 to col. 3, line 7)

Cantu further discloses that among the advantages in using microencapsulated chemicals is that the encapsulating material can be controlled to dissolve and release the chemical(s) downhole so that the various chemicals start to work where they are

intended to be effective; and that the microencapsulated chemicals can include more active chemicals that actually reach the area of effectiveness/interest and thus have longer residual effects of the chemical treatment. (Col. 3, lines 8-15 and lines 23-29) The capsule size and shape of the microcapsule can be controlled to be, e.g., larger to be uitilzed on or near the well bore surface, or alternatively, to be smaller, micron-sized capsules that would allow passage into and through reservoir pores to provide effective penetration of the chemical into the reservoir. (Col. 3, lines 16-22)

In the Example on col. 4, Cantu discloses injecting encapsulated microparticles scale inhibitor(s) into a formation at 160°F (66°C), wherein the microparticles are formed by encapsulating the inhibitor within a shell of polymerized hydroxyacetic acid. A distribution of microcapsules containing the inhibitor dispersed in kerosene (suspension) is injected into the oil bearing formation at 2 bbls per minute using 2% KCl as a carrier fluid, followed by a second injection to displace the capsules away from the well bore. At the formation temperature, the hydroxyacetic acid condensation microcapsules slowly degrade and release the scale inhibitor thereby controlling scale formation. (Col. 6, lines 6-40)

Although Cantu does not expressly disclose the physical properties recited in the claims for the microcapsule/suspension, such as suspension propagation or dispersion rate, because the microcapsules/suspension in Cantu have the same microcapsule composition as encompassed by the instant claims, then they must inherently possess the same physical properties, such as rate of propagation and dispersion rate.

Thus, the claims are anticipated by Cantu.

3. Claims 32-34 and 36-51 is rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,380,136 B1 to Bates et al., hereinafter 'Bates'.

Bates discloses a method of inhibiting scale formation comprising injecting the scale inhibitor into a formation in the form of particles in a liquid suspension/dispersion in an oil (10-50% particles by weight), shutting the well to permit "percolation, followed by the controlled release of the scale inhibitor into the formation. (Col. 1, lines 42-64; col. 10, lines 1-39; *See,* Examples 1 and 12) The inhibitors used in the suspension of solid particles have a particle size sufficiently small so that the particles can disperse in an oily continuous phase because if the particles are too large they will tend to settle out and potentially lead to agglomeration problems. (Col. 2, line 35-39) The particle size is preferably less that than 5 microns but not less than 200 nanometers. (Col. 2, lines39-44)

Bates further discloses that coated scale inhibitors in the form of particles significantly extends the life-time of the inhibitor thereby increasing the cost effectiveness of inhibitor treatment; and also teaches a process for preparing said particles by comminuting to provide scale inhibitor particles having an average size of between 0.4 and 3 microns (diameter of 400 to 3000 nm). (Abstract; col. 1, lines 41-45; col. 2, lines 35-52; col. 3, lines 1-24; col. 9, lines 41-67; Examples 1-2) The coating in the particles can be a dispersing agent to facilitate their suspension in an inert oil that is to be injected into the formation. (Col. 1, lines 46-64) The dispersing agent can be a polymer, such as a quaternized polyacrylamide or an ester (that can be, e.g.,

biodegradable). (Col. 3, line 46 to col. 4, line 8; col. 10, lines 1-15) The particle coating may also comprise a surfactant. (Col. 4, line 62 to col. 5, line 6; Examples 3-11)

Bates discloses that the concentration of inhibitor present may be between 1 and 5000 ppm, preferably, between 1 and 200 ppm. (Col. 10, lines 38-39). The coating of the scale inhibitor particles in a liquid suspension/dispersion in an oil (10-50% particles by weight) allows for the controlled release of the inhibitor into the formation thereby providing a significant increase in the life of the inhibitor, a reduction in the number of treatments required and a rapid return of the well to full production. Consequently, production downtime and chemical costs are reduced. (Col. 10, lines 1-38; Example 12)

Bates discloses samples of an encapsulated scale inhibitor that provide a theoretical maximum concentration of 100 ppm in water (col. 14, lines 20-32) and using samples of the microparticle suspension to deliver inhibitors into an oil well in the North Sea (arctic climate) and subsequently heating the tube containing the suspension of inhibitor particles to 115°C, whereas in Example 12, Bates discloses injecting a 25% suspension of microencapsulated inhibitors in diesel oil into a North Sea well, wherein the particle size of the microparticles was 0.75 microns (750 nm).

Although Bates does not expressly disclose the physical properties recited in the claims for the microcapsules, such as suspension propagation or dispersion rate, because the microparticles disclosed by Bates have the same microparticle composition as encompassed by the instant claims, then they must inherently possess the same physical properties, such as rate of propagation and dispersion rate.

Thus, the claims are anticipated by Bates.

Claim Rejections - 35 USC § 103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 103 that form the basis for the rejections under this section made in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 35 is rejected under 35 U.S.C. 103(a) as unpatentable over of USPN 6,364,011 Bergeron, hereinafter 'Bergeron', in view of Cantu or Bates.

Cantu and Bates were discussed above. Although Bates and Cantu both disclose examples of injecting the microparticle inhibitor suspension into a well bore, neither Bates nor Cantu expressly disclose the length of the well bore nor the distance of the injection well from the well bore.

As stated above, because the microparticle suspension disclosed in both Bates and Cantu are encompassed by the suspension of the instant claims, they must have the same physical properties and thus must be as effective when injected into the formation from the same distance as the claimed suspension. In addition, it is well known that well bores have a typical length of several thousand feet (1 miles is 5,280 feet). (Bergeron, col. 1, lines 11-18)

Accordingly, it would have been obvious to a person of ordinary skill in the art at the time that the claimed invention to use the microparticle suspension of scale inhibitors disclosed in Cantu or Bates in a well bore having a typical length of a few thousand feet. It would have been obvious to one skilled in the art to inject the

suspension of scale inhibitors into a well bore having a typical length to take advantage of the teachings in Bates or Cantu regarding the advantages of using microparticles, such as ability to control the time/area of release of the chemical and reduction of chemical costs and production downtown.

Therefore, the claims are unpatentable over Bates or Cantu, either in view of Bergeron.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Figueroa whose telephone number is (571) 272-8916. The examiner can normally be reached on Mon-Thurs & alt. Fri 8:00-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JJF/RAG

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